

Glacier National Park Area Global Change Research Program

Publications and Manuscripts

I Publications

- Baron, J. S., D. M. Theobald, and D. B. Fagre. 2000. Management of land use conflicts in the United States Rocky Mountains. *Mountain Research and Development*. 20(1):24-27.
- Baxter, C. V. and F. R. Hauer. 2000. Geomorphology, hyporheic exchange, and selection of spawning habitat by bull trout (*Salvelinus confluentus*). *Canadian Journal of Fisheries and Aquatic Sciences*. 57:1470-1481.
- Baxter, C. V., C. A. Frissell, and F. R. Hauer. 1999. Geomorphology, logging roads, and the distribution of bull trout spawning in a forested river basin: implications for management and conservation. *Transactions of the American Fisheries Society*. 128(5):854-867.
- Fagre, D. B. and D. L. Peterson. 2002. Modelling and monitoring ecosystem responses to climate change in three North American mountain ranges. Pg. 249-259 *In Mountain Biodiversity: A Global Assessment*. Parthenon Publishing Group, London, UK, New York, USA.
- Fagre, D. B., D. Selkowitz, B. Reardon, K. Holzer, and L. McKeon. 2002. Modeling and measuring snow for assessing climate change impacts in Glacier National Park, Montana. Pages 417-424 *in Proceedings of International Snow Science Workshop*, Penticton, B.C., Canada, Sept. 29 – Oct. 4, 2002. International Snow Science Workshop Canada, Inc.
- Fagre, D., K. Tonnessen, K. Morris, G. Ingersoll, L. McKeon, and K. Holzer. 2000. An elevational gradient in snowpack chemical loading at Glacier National Park, Montana: implications for ecosystem processes. Pages 462-471 *in Proceedings of The International Snow Science Workshop*, October 1- 6, 2000, Big Sky, Montana. American Avalanche Association. Bozeman, Montana.
- Fagre, D. B. and F. L. Klasner. 2000a. Application of snow models to snow removal operations on the Going-To-The-Sun Road, Glacier National Park. Pages 266-272 *in Proceedings of The International Snow Science Workshop*, October 1- 6, 2000, Big Sky, Montana. American Avalanche Association. Bozeman, MT.
- Fagre, D. B. and D. L. Peterson. 2000b. Ecosystem dynamics and disturbance in mountain wildernesses: assessing vulnerability of natural resources to change. Pages 74-81 *in Proceedings of USDA Forest Service Proceedings RMRS-P-15*, Vol. 3, May 23-27, 1999, Missoula MT.
- Fagre, D. B. 2000. Changing mountain landscapes in a changing climate; looking into the future. *Changing Landscapes*. 31-39.
- Fagre, D.B. 1999. Glacier National Park climate change research delivers insights. Pages 25-26 *In J.*

Selleck, editor. Natural Resource Year in Review - 1998. U.S. Department of the Interior, National Park Service, Lakewood, CO, USA.

- Fagre, D. B., C. H. Key, J. D. White, S. W. Running, F. R. Hauer, R. E. Keane, and K. C. Ryan. 1999. Ecosystem dynamics of the Northern Rocky Mountains, USA. Pages 20-22 *In* M. F. Price, T. H. Mather, and E. C. Robertson, editors. Global Change in the Mountains: Proceedings of the European Conference on Environmental and Societal Change in Mountain Regions, December 18-20, 1997, Oxford, UK . Parthenon Publishing Group, New York, USA.
- Fagre, D. B. 1998. Understanding climate change impacts on Glacier National Park's natural resources. Pages 105-107 *In* M. J. Mac, P. A. Opler, C. E. Haecker-Puckett, P. D. Doran, and L. S. Huckaby, editors. Status and Trends of the Nation's Biological Resources. U.S. Department of Interior, U.S. Geological Survey , Reston, VA, USA.
- Fagre, D. B., P. L. Comanor, J. D. White, F. R. Hauer, and S. W. Running. 1997. Watershed responses to climate change at Glacier National Park. *Journal of the American Water Resources Association.* 33(4):755-765.
- Fagre, D. B. 1994. Mountains and Plains: The Ecology of Wyoming Landscapes (book review). *Mountain Research and Development.* 15:86-87.
- Farmer, M. 1995. A lichenometric study of the moraines fronting Sperry Glacier, Glacier National Park, Honours thesis. University of Liverpool, Liverpool, U.K.
- Finney, M. A. and K. C. Ryan. 1995. Use of the FARSITE Fire Growth Model for fire prediction in U.S. National Parks. Pages 183-189 *in* Proceedings of The International Emergency Management and Engineering Conference (TIEMEC'95), May 9-12, 1995, Nice, France.
- Hall, M. P. and D. B. Fagre. 2003. Modeled climate-induced glacier change in Glacier National Park, 1850-2100. *Bioscience.* 53(2):131-140.
- Hall, D. K., J. L. Foster, J. Y. L. Chien, and G. A. Riggs. 1995a. Determination of actual snow-covered area using Landsat TM and digital elevation model data in Glacier National Park, Montana. *Polar Record.* 31(177):191-198.
- Hall, D. K., G. A. Riggs, and V. V. Salomonson. 1995b. Development of methods for mapping global snow cover using moderate resolution imaging spectroradiometer data. *Remote Sensing of the Environment.* 54:127-140.
- Hall, D. K., D. B. Fagre, F. Klasner, G. Linebaugh, and G. E. Liston. 1994. Analysis of ERS 1 synthetic aperture radar data of frozen lakes in northern Montana and implications for climate change. *Journal of Geophysical Research.* 99(C11):22,473-22,482.
- Hall, M. P. 1994. Predicting the impact of climate change on glacier and vegetation distribution in Glacier National Park to the Year 2100, M.S. Thesis. State University of New York, Syracuse, NY.
- Hauer, F. R., J. A. Stanford, J. Giersch, and W. H. Lowe. 2000. Distribution and abundance patterns of macroinvertebrates in a mountain stream: an analysis along multiple environmental gradients. *Verh. Internat. Verein. Limnol.* 27:1-4.

- Hauer, R. R., G. C. Poole, Gangemi John T., and C. V. Baxter. 1999. Large woody debris in bull trout (*Salvelinus confluentus*) spawning streams of logged and wilderness watersheds in northwest Montana. *Canadian Journal of Fisheries and Aquatic Sciences*. 56(6):915-924.
- Hauer, F. R., J. S. Baron, D. H. Campbell, K. D. Fausch, S. W. Hostetler, G. H. Leavesley, P. R. Leavitt, D. M. McKnight, and J. A. Stanford. 1997. Assessment of climate change and freshwater ecosystems of the Rocky Mountains, USA and Canada. *Hydrological Processes*. 11:903-924.
- Hauer, F. R. and G. A. Lamberti eds. 1996. *Methods in Stream Ecology*. Academic Press, San Diego, USA.
- Hauer, F. R. and V. H. Resh. 1996. Benthic Macroinvertebrates. Pages 339-370 *In* F. R. Hauer and G. A. Lamberti, editors. *Methods in Stream Ecology*. Academic Press, San Diego, CA, USA.
- Johnson, K. A., J. E. Smith, D. A. Perry, and J. M. Trappe. In Review. Pinegrass (*Calamagrostis rubescens*) facilitates vesicular-arbuscular mycorrhizal colonization and phosphorus uptake in subalpine fir (*Abies lasiocarpa*; Pinaceae). *Oecologia*.
- Johnson, S. M. 1994. The disappearing glaciers of Glacier National Park, MT: a study of their movements since the Little Ice Age, senior thesis. Carleton College, Northfield, MN.
- Keane, R. E., P. Morgan, and J. D. White. 1999. Temporal pattern of vegetation communities and ecosystem processes on simulated landscapes of Glacier National Park, USA. *Landscape Ecology*. 14(3):311-329.
- Keane, R. E., P. Morgan, and J. D. White. 1999. Temporal patterns of ecosystem processes on simulated landscapes in Glacier National Park, Montana, USA. *Landscape Ecology*. 14(3):311-329.
- Keane, R. E., K. C. Ryan, and M. A. Finney. 1998. Simulating the consequences of altered fire regimes on a complex landscape in Glacier National Park, USA. Pages 310-324 *in* Proceedings of 20th Tall Timbers Fire Ecology Conference, Fire in Ecosystem Management: Shifting the Paradigm From Suppression to Prescription. Tall Timbers Research, Inc. Tallahassee FL.
- Keane, R. E., C. C. Hardy, K. C. Ryan, and M. A. Finney. 1997. Simulating effects of fire on gaseous emissions and atmospheric carbon fluxes from coniferous forest landscapes. *World Resource Review*. 9(2):177-205.
- Keane, R. E., P. Morgan, and S. W. Running. 1996. FIRE-BGC - A mechanistic ecological process model for simulating fire succession on coniferous forest landscapes of the Northern Rocky Mountains INT-RP-484. U.S. Department of Agriculture, Forest Service, Intermountain Research Station. Ogden, UT. USA. 122 pp.
- Keane, R. E., K. C. Ryan, and S. W. Running. 1996. Simulating effects of fire on northern Rocky Mountain landscapes with the ecological process model FIRE-BGC. *Tree Physiology*. 16:319-331.
- Keane, R. E., K. C. Ryan, and S. W. Running. 1995. Simulating the effects of fire and climate change on Northern Rocky Mountain landscapes using the ecological process model FIRE-BGC, RM-GTR-262. Pages 39-47 *in* Proceedings of Interior West Global Change Workshop, April 25-27, 1995, Fort Collins, CO. Rocky Mountain Forest and Range Experiment Station.

- Key, C. H., D. B. Fagre, and R. K. Menicke. 2002. Glacier retreat in Glacier National Park, Montana. Pages J365-J381 *In* R. S. Jr. Williams and J. G. Ferrigno, editors. Satellite Image Atlas of Glaciers of the World, Glaciers of North America - Glaciers of the Western United States. United States Government Printing Office, Washington D. C., USA.
- Key, C. H., S. Johnson, D. B. Fagre, and R. K. Menicke. 1997. Glacier recession and ecological implications at Glacier National Park, Montana. Pages 88-90 *In* R. S. Williams and J. G. Ferrigno, editors. Final Report of the Workshop on Long-Term Monitoring of Glaciers of North America and Northwestern Europe. USGS, Woods Hole, MA, USA.
- Klasner, F. L. and D. B. Fagre. 2002. A half century of change in alpine treeline patterns at Glacier National Park, Montana, U.S.A. Arctic, Antarctic, and Alpine Research. 34(1):49-56.
- Liston, G. E. and D. K. Hall. 1995a. An energy-balance model of lake-ice evolution. Journal of Glaciology. 41(138):373-382.
- Liston, G. E. and D. K. Hall. 1995b. Sensitivity of lake freeze-up and break-up to climate change: a physically based modeling study. Annals of Glaciology. 21:387-393.
- Lowe, W. H. and F. R. Hauer. 1999. Ecology of two large, net-spinning caddisfly species in a mountain stream: distribution, abundance, and metabolic response to a thermal gradient. Canadian Journal of Zoology. 77:1637-1644.
- Pepin, D. M. and F. R. Hauer. 2002. Benthic responses to groundwater-surface water exchange in two alluvial rivers. Journal of the North American Benthological Society. 21(3):370-383.
- Ringleb, R., C. Martinka, D. Fagre, G. Liston, D. Potts, and E. Willard. 1994. A spatial snow model for predator/prey interactions. Pages 350-359 *in* Proceedings of PECORA 12 Symposium, Land Information from Space-Based Systems, August 24-26, 1993, Sioux Falls, SD.
- Ringleb, R. V., C. J. Martinka, and D. B. Fagre. 1992. Ecology of wildfire, wildlife, and snowfall in Glacier National Park, Montana. Northwest Environmental Journal. 8(1):222-224.
- Running, S. W. and P. E. Thornton. 1996. Generating daily surfaces of temperature and precipitation over complex topography. Pages 93-98 *In* M. F. Goodchild, L. T. Steyaert, B. O. Parks, C. Johnston, D. Maidment, M. Crane, and S. Glendinning, editors. GIS and Environmental Modeling: Progress and Research Issues. GIS World, Inc., Fort Collins, CO, USA.
- Selkowitz, D. J., D. B. Fagre, and B. A. Reardon. 2002. Interannual variations in snowpack in the crown of the continent ecosystem. Hydrological Processes. 16:3651-3665.
- Thornton P.E., S. W. Running, and M. A. White. 1997. Generating surfaces of daily meteorological variables over large regions of complex terrain. Journal of Hydrology. 190:214-251.
- Waring, R. H. and S. W. Running. 1998. Forest Ecosystems: Analysis at Multiple Scales. Academic Press, San Diego, CA, USA.
- White, J. D., S. W. Running, P. E. Thornton, R. E. Keane, K. C. Ryan, D. B. Fagre, and C. H. Key. 1998. Assessing simulated ecosystem processes for climate variability research at Glacier National Park, USA. Ecological Applications. 8(3):805-823.

- White, J. D., S. W. Running, R. Nemani, R. E. Keane, and K. C. Ryan. 1997. Measurement and remote sensing of LAI in Rocky Mountain montane ecosystems. Canadian Journal of Forest Research. 27:1714-1727.
- White, J. D., K. C. Ryan, C. H. Key, and S. W. Running. 1996. Remote sensing of forest fire severity and vegetation recovery. International Journal of Wildland Fire. 6(3):125-136.
- White, J. D. 1996. Spatial and temporal scale effects on assessment of a regional ecosystem model: modeling climate change in Glacier National Park, USA PhD Dissertation. The University of Montana, Missoula, MT.
- White, J. D. and S. W. Running. In Press. Spatial data heterogeneity effects on regional ecosystem modeling. *in* Proceedings of the Symposium on Spatial Information and the Environment, Sept. 26-28, 1996, Waterton Lakes, Alberta.
- White, J. D. and S. W. Running. 1994. Testing scale dependent assumptions in regional ecosystem simulations. Journal of Vegetation Science. 5:687-702.
- White, M. A., P. E. Thornton, and S. W. Running. 1997. A continental phenology model for monitoring vegetation responses to interannual climatic variability. Global Biogeochemical Cycles. 11(2):217-234.

II Other Publications

- Becker, A., H. Bugmann. 1999. *Global Change and Mountain Regions, Initiative for Collaborative Research.* Draft.
- Fagre, D. B. 1998. *Responses of Glacier National Park to Future Environmental Change.* Pages 7-11 in C. Daly, ed. Proceedings, Interpreting the landscape through science. Flathead Valley Community College, Kalispell, MT. May 15-16, 1998.
- Fagre, D. B. 1999. *Glacier National Park climate change research delivers insights.* Pages 25-26 in J. Selleck, ed. Natural Resource Year in Review -- 1998. NPS Publ. Series D-1346 Lakewood, CO.
- Fagre, D. B., S. W. Running, R. E. Keane, and F. R. Hauer. 1999. *Ecosystem Models as Tools in Assessing Mountain Protected Areas.* Page 49 in EMAP Symposium on Western Ecological Systems: Status, Issues, and New Approaches. San Francisco, CA. April 6-8, 1999. 158 pp.
- Johnson, K. A., D. A. Perry, and D. B. Fagre. 1995. *Conifer establishment at high-elevation treelines: influences and responses belowground.* Final Report to Global Change Research Program. National Biological Service. West Glacier, MT. 12 pp.
- Klasner, F. L. Submitted. *Spatial changes in alpine treeline vegetation patterns in Glacier National Park, Montana.* Abstract in Association of American Geographers Annual Meeting.
- Lowe, W.H., Hauer, F.R. 1999. *Ecology of two large, net-spinning caddisfly species in a mountain stream: distribution, abundance, and metabolic response to a thermal gradient.* Can. J. Zool. 77: 1637-1644.
- Malanson, G. P., Xiao, N., Alftine, K., Bekker, M., Butler, D.R., Brown, D. G., Cairns, D.M., Fagre, D., Walsh, S. J. 2000. *Abiotic and biotic controls of spatial pattern at alpine treeline.* Proc. 4th International Conference on Integrating GIS and Environmental Modeling (GIS/EM4): Problems, Prospects and Research Needs. Banff, Alberta, Canada, September 2-8, 2000. Pp.
- Pepin, David M., and F. Richard Hauer. 2001. *Benthic responses to groundwater – surface water exchange in two alluvial rivers.* Submitted to: Journal of the North American Benthological Society
- Ringleb, R. V., and C. Ringleb. *Paleo environments and climate change in the greater Glacier National Park area.* National Biological Service, CA 1268-0-9001. Final Report. 32 pp.
- Ringleb, R., and C. Ringleb. 1992. *Exploring the landscapes of Montana dinosaurs.* Western Wildlands 18: 25-28.